

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently amended) An inertial reference system for an aircraft, comprising:

a first accelerometer located at a front ~~portion~~ vibration antinode of said aircraft;

a second accelerometer located at a rear ~~portion~~ vibration antinode of said aircraft;

a gyrometer located at a center ~~portion~~ vibration node of said aircraft; and

a control computer linked to said first and second accelerometers and to said

gyrometer.

Claim 2 (Currently amended): The system of Claim 1, wherein the center ~~portion~~ vibration node ~~include~~ includes said aircraft's center of gravity.

Claim 3 (Currently amended): The system of Claim 1, wherein said control computer is located outside said ~~front, rear, and central portions~~ front and rear vibration antinodes and said center vibration node.

Claim 4 (Original): The system of Claim 1, wherein said first and second accelerometers and said gyrometer are housed inside a fuselage of said aircraft.

Claim 5 (Currently amended): The system of Claim 1, wherein said control computer generates flight control parameters based on data received from said first and second accelerometers and to said gyrometer.

Claim 6 (Currently amended): A system for controlling an aircraft, comprising:

means for receiving first vertical acceleration data related to a vertical acceleration of a front portion vibration antinode of said aircraft;

means for receiving second vertical acceleration data related to a vertical acceleration of a rear portion vibration antinode of said aircraft;

means for receiving pitch rate data related to a pitch rate of a center portion vibration node of said aircraft; and

means for generating a pitch command based on said first and second vertical acceleration data and on said pitch rate data.

Claim 7 (Original): The system of Claim 6, wherein said means for generating comprises means for filtering signals carrying said first and second vertical acceleration data and said pitch rate data.

Claim 8 (Original): The system of Claim 7, wherein said means for filtering filters frequencies in excess of 10 Hz.

Claim 9 (Original): The system of Claim 6, further comprising means for receiving pitch flight control data, and wherein said means for generating generates said pitch command based on said pitch flight control data.

Claim 10 (Currently amended): A system for controlling an aircraft, comprising:
means for receiving first horizontal acceleration data related to a horizontal acceleration of a front portion of said aircraft;
means for receiving second horizontal acceleration data related to a horizontal acceleration of a rear portion of said aircraft;

means for receiving roll rate data related to a roll rate of a center portion of said aircraft;

means for receiving yaw rate data related to a yaw rate of a center portion of said aircraft; and

means for generating at least one of both a roll command and a yaw command based on said first and second horizontal acceleration data, on said roll rate data, and on said yaw rate data.

Claim 11 (Original): The system of Claim 10, wherein said means for generating comprises means for filtering signals carrying said first and second horizontal acceleration data, said roll rate data and said yaw rate data.

Claim 12 (Original): The system of Claim 10, wherein said means for filtering filters frequencies in excess of 10 Hz.

Claim 13 (Original): The system of Claim 10, further comprising means for receiving roll flight control data, wherein said means for generating generates said roll command based on said roll flight control data.

Claim 14 (Original): The system of Claim 10, further comprising means for receiving yaw flight control data, wherein said means for generating generates said yaw command based on said yaw flight control data.

Claim 15 (Currently amended): The system of Claim 10, further comprising:

means for receiving first vertical acceleration data related to a vertical acceleration of said front portion of said aircraft;

means for receiving second vertical acceleration data related to a vertical acceleration of said rear portion of said aircraft;

means for receiving pitch rate data related to a pitch rate of said center portion of said aircraft; and

means for generating a pitch command based on the said first and second vertical acceleration data and on the said pitch rate data.

Claim 16 (New): A system for controlling an aircraft, comprising:

means for receiving roll, pitch, and yaw flight control data;

means for receiving roll, pitch, and yaw rate data related to roll, pitch, and yaw rates of a center portion of said aircraft;

means for receiving vertical acceleration data related to a vertical acceleration of a front portion of said aircraft and to a vertical acceleration of a rear portion of said aircraft;

means for receiving horizontal acceleration data related to a horizontal acceleration of said front portion of said aircraft and to a horizontal acceleration of said rear portion of said aircraft;

means for computing both a roll command and a yaw command based on said roll and yaw flight control data, on said roll and yaw rate data, on said vertical acceleration data, and on said horizontal acceleration data;

means for computing a pitch command based on said pitch flight control data, on said pitch rate data, and on said vertical acceleration data; and

means for actuating control surfaces configured to control roll, pitch, and yaw of said aircraft based on said roll, pitch, and yaw commands.

Claim 17 (New): The system of Claim 16, further comprising:

means for filtering signals carrying said roll, pitch, and yaw rate data, said vertical acceleration data, and said horizontal acceleration data;

means for weighing said filtered roll, pitch, and yaw rate data, vertical acceleration data, and horizontal acceleration data;

means for phase-controlling said filtered and weighed roll, pitch, and yaw rate data, vertical acceleration data, and horizontal acceleration data; and

means for summing said phase-controlled, filtered, and weighed roll, pitch, and yaw rate data, vertical acceleration data, and horizontal acceleration data.

Claim 18 (New): The system of Claim 17, further comprising means for integrating said roll rate data to derive roll angle information.

Claim 19 (New): The system of Claim 18, further comprising integrating said roll rate data to derive roll angle information and weighing said roll angle information.

Claim 20 (New): The system of Claim 16, wherein said control surfaces include an elevator, ailerons, spoilers, and a rudder.